Physics Lib.

CONTENTS

SECTION A—VOL. XIX

No. 1—January, 1944

PAGE

The Oil of *Mimusops elangi* (Linn.) . . . . . A. R. SUKUMARAN KARTHA AND K. N. MENON 1

Synthetic Experiments in the Benzo-Pyrone Series. Part VIII. Some Transformations of 5-Hydroxy-Coumarin Derivatives. . . . B. KRISHNASWAMY, K. RANGANADHA RAO AND T. R. SESHADRI 5

Azo Dye Formation in 5-Hydroxycoumarins . . . . . S. RANGASWAMI AND K. RANGANADHA RAO 14

Raman Effect and Hydrogen Bonds. Part IX. Solutions of Salicylic Acid and Aspirin . . . G. V. L. N. MURTY AND T. R. SESHADRI 17

Alkaloids. Part I. The Oxidation of Papaverine to Papaveraldine (Xanthaline) by Selenium Dioxide . . . . . K. N. MENON 21

Note on the Separation of the Electronic and Non-Electronic Components of Cosmic Radiation . . . . . H. J. BHABHA 23

The Method of Shower Anti-Coincidences for Measuring the Meson Component of Cosmic Radiation . . . . VIKRAM SARABHAI 37

Study of the Optical Properties of Gels. Part I. Thorium Molybdate Gels . . . . . MATA PRASAD AND S. GURUSWAMY 47

Study of the Optical Properties of Gels. Part II. Thorium Arsenate Gels . . . . . MATA PRASAD AND S. GURUSWAMY 66

Study of the Optical Properties of Gels. Part III. Silicic Acid Gels . . . . . MATA PRASAD AND S. GURUSWAMY 77

Synthesis of Hibiscetin . . . . . P. RAMACHANDRA RAO, P. SURYAPRAKASA RAO AND T. R. SESHADRI 88

No. 2—February, 1944

Raman Effect in Relation to Crystal Structure: Sodium Nitrate . . . . . B. SUNDARA RAMA RAO 93

An Electrical Method of Studying the Movement of Water and Salts in Soil: Part I. A Sensitive A. C. Bridge with an Electronic Null-Point Indicator . . . . . A. U. MOMIN 100

Scattering of Light in Single Crystals: Intensity Measurements . . . . . S. BHAGAVANTAM AND K. VENKATESWARLU 108

PAGE

Effect of Temperature on the Intensities of Raman Lines: Part III. Liquids . . . . . K. VENKATESWARLU 111

The *New Light-Effect* in Chlorine under Electrical Discharge: Part I. Influence of Different Irradiations on the Production of the Phenomenon under Constant Electrical Conditions . . . . . P. G. DEO 117

No. 3—March, 1944

Diffraction Coronæ due to Non-Spherical Particles . . . . . G. N. RAMACHANDRAN 123

The Lunar Atmospheric Tide at Bangalore (1895-1904) . . . . . C. SESHACHAR AND V. R. THIRUVENKATACHAR 131

Fluorescence Spectrum of Uranyl Fluoride . . . . . D. D. PANT AND N. D. SAKHWALKAR 135

5-Hydroxy and Methoxy Flavylium Salts . . . . . L. RAMACHANDRA ROW AND T. R. SESHADRI 141

Congruence Properties of Ramanujan's Function $\tau(n)$ . . . . . K. G. RAMANATHAN 146

The Measurement of Surface Tension by Means of Sessile Drops . . . . . H. J. TAYLOR AND J. ALEXANDER 149

No. 4—April, 1944

Influence of Temperature on the Quenching of Active Nitrogen at Various Pressures . . . S. S. JOSHI AND A. PURUSHOTHAM 159

Chemical Examination of the Roots of *Centaurea Behen* Linn. Isolation of Behnin . . . . . PRITHVI NATH BHARGAVA AND SIKHIBHUSHAN DUTT 163

On the Existence of a Metric for Higher Path-Spaces . . . . . V. SEETHARAMAN 167

Separation of Electronic and Non-Electronic Components of Cosmic Radiation by Bhabha's Method . . S. V. CHANDRASHEKHAR AIYA 177

The Evaluation of the Specific Heat of Rock-Salt by the New Crystal Dynamics . . . . . BISHESHWAR DAYAL 182

No. 5—May, 1944

The Crystal Symmetry and Structure of Diamond. SIR C. V. RAMAN 189

The Nature and Origin of the Luminescence of Diamond . . . . . SIR C. V. RAMAN 199

The Raman Spectrum of Diamond . . . . . R. S. KRISHNAN 216

PAGE

The Lattice Spectrum and Specific Heat of Diamond . . . . . BISHESHWAR DAYAL 224

The Fluorescence and Absorption Spectra of Diamond in the Visible Region . . . . . ANNA MANI 231

The Ultra-Violet Absorption Spectrum of Diamond . . . . . K. SUNANDA BAI 253

Intensity of X-Ray Reflection by Diamond . . P. S. HARIHARAN 261

Birefringence Patterns in Diamond . . . . . SIR C. V. RAMAN AND G. R. RENDALL 265

Luminescence Patterns in Diamond . . . . K. SUNANDA BAI 274

X-Ray Topographs of Diamond . . . . G. N. RAMACHANDRAN 280

Ultra-Violet Transparency Patterns in Diamond . G. R. RENDALL 293

Experimental Evidence for the Existence of the Four Possible Structures of Diamond . . . . . R. S. KRISHNAN 298

X-Ray Reflection and the Structure of Diamond . . . . . G. N. RAMACHANDRAN 304

Magnetic Susceptibility of Diamond . . . . . A. SIGAMONY 310

The Photo-Conductivity of Diamond. Part I. Experimental Results . . . . . DEVI DATT PANT 315

The Photo-Conductivity of Diamond. Part II. Theoretical Considerations . . . . . DEVI DATT PANT 325

The Crystal Forms of the Panna Diamonds . . S. RAMASESHAN 334

No. 6—June, 1944

Bacterial Chemotherapy. IV. Synthesis of N^4, N^1-Diacyl Sulphanilamides . . . . . S. RAJAGOPALAN 343

Bacterial Chemotherapy. V. Synthesis of Phenolic Azo-dyes derived from the Sulphonamides . . . . . S. RAJAGOPALAN 351

Calculation of the Elastic Constants of Quartz at Room Temperature from the Raman Effect Data . . . . . BISHAMBHAR DAYAL SAKSENA 357

Chemistry of Gossypol. Part IV. Behaviour of Gossypol as an Ortho-Hydroxy Aldehyde: Formation of α-Pyrones and Flavylium Salts . . B. KRISHNASWAMY, K. SATYANARAYANA MURTY AND T. R. SESHADRI 370

The Magnetic Susceptibility and Anisotropy of Carborundum . . . . . A. SIGAMONY 377

PAGE

Synthesis of Compounds Related to Santonin . . . . . (MISS) K. D. PARANJAPE, N. L. PHALNIKAR, B. V. BHIDE AND . . . . . K. S. NARGUND 381

Synthesis of Cantharidine and Desoxycantharidine . . . . . (MISS) K. D. PARANJAPE, N. L. PHALNIKAR, B. V. BHIDE AND . . . . . K. S. NARGUND 385

Opacity Changes during the Coagulation of Sols by Electrolytes . . . . MATA PRASAD, S. GURUSWAMY AND N. A. PADWAL 389

Fluorescence Reactions with Boric Acid and *O*-Hydroxy-Carbonyl Compounds, and their Application in Analytical Chemistry. Part III. Effect of Bromination of the *O*-Hydroxy-Carbonyl Molecule on the Appearance of Fluorescence Effects with Boric Acid . . K. NEELAKANTAM AND V. VENKATESWARLU 401

Effect of Electric Field on Tyndall Scattering . . . . . R. S. SUBRAHMANYA, K. S. GURURAJA DOSS AND . . . . . BASRUR SANJIVA RAO 405

Kombur Sesha Iyengar Kuppuswamy Iyengar—In Memoriam . . . . . B. S. MADHAVA RAO 414